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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,948

02/24/2006

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,948	<b>Applicant(s)</b> NAKASHIMA ET AL.	
	<b>Examiner</b> John J. Zimmerman	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/8/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20050822</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **FIRST OFFICE ACTION**

### ***Priority***

1. A certified copy of the priority document has been received in this National Stage application received from the International Bureau (PCT Rule 17.2(a)).

### ***Drawings***

2. The drawings filed with this application are accepted.

### ***Claim Rejections - 35 USC § 112, Second Paragraph***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. There is no antecedent basis for "on the side on which the main stress is exerted" (e.g. claim 1, lines 5-6). There is no antecedent basis for "the one that suppresses the propagation of cracks due to fatigue" (e.g. claim 1, lines 6-7).

***Claim Rejections - 35 USC § 112, First Paragraph***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Matter critical or essential to the practice of the invention, but not included in the claims is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). A review of the disclosure shows that the steel plate that suppresses the propagation of cracks due to fatigue is a "surface layer ultra-fine granulated steel" (SUF) plate with a "compressive residual stress in the surface layer" (e.g. see page 8, line 16 - page 9, line 30; Examples). These two limitations are essential and therefore critical to the results shown in the Examples and tables in the disclosure and therefore these limitations should be included in independent claim 1. Applicant has not disclosed other combinations of materials and properties other than the use of a SUF plate with a compressive residual stress in the surface layer that produce the properties claimed in current claim 1. There is not adequate teaching in the disclosure to use materials other than SUF plate with a compressive residual stress in the surface layer to produce the welded joint having the properties claimed in independent claim 1. Therefore, the limitations of using a "surface layer ultra-fine granulated steel" (SUF) plate with a "compressive residual stress in the surface layer" are critical to the invention and should be included in the independent claim.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's disclosure of the prior art ("Background Art", pages 1-3) in view of Statnikov (U.S. Patent 6,171,415).

10. Applicant discloses that generally a circularly welded joint obtained by welding the ends of two pieces of steel plates perpendicularly combined together has been much used in industry and that much effort has gone into improving the fatigue strength through various methods (e.g. see "Background Art", page 1, lines 20-35). Applicant discloses that generally, residual stress is introduced into the welded portion due to the heat input of welding and that residual stress is one of the factors that decrease the fatigue strength of the welded portion. Applicant discloses that a known method of increasing the fatigue strength is by producing compressive residual stress in the welded joint (e.g. see "Background Art", page 2, lines 19-27). Applicant also discloses that there has been developed an SUF steel forming an ultra-fine microstructure in the surface layer by working ferrite and that this steel exhibits the effect of delaying the propagation of cracks due to fatigue (e.g. see "Background Art"; page 3, lines 25-34). This disclosure of the prior art differs from the claims in that applicant may not disclose the use of SUF steel plate in making

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circularly welded joints to suppress the propagation of cracks due to fatigue in these types of joints. It would be obvious, however, to one of ordinary skill in the art at the time the invention was made to use the prior art SUF steel plates (which were developed to suppress the propagation of cracks due to fatigue) in prior art circularly welded joints which are known to suffer from propagation of cracks due to fatigue. The use of materials that are specifically disclosed to suppress problems in joints that are specifically known to have those same problems would be a matter of obvious basic engineering selection of suitable materials and would not be a patentable distinction. The applicant's disclosure of the prior art may also differ from the claims in that applicant may not disclose impacting the prior art circularly welded joints with an ultrasonic oscillation terminal. Statnikov, however, clearly shows that using an ultrasonic oscillation terminal to reduce the stresses in welded products and reduce stress fatigue (e.g. see column 1, lines 5-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Statnikov's ultrasonic impact treatment for the circularly welded joints of applicant's disclosed prior art because the prior art welded joints are disclosed to suffer from stress fatigue and Statnikov discloses that his ultrasonic treatment reduces stress fatigue in welded joints. Optimization of the range of the compressive stress for a particular joint configuration, material thickness and material composition would be an obvious optimization in order to get the best results from the ultrasonic treatment.

11. Regarding the use of applicant's disclosure of the prior art in this rejection, it is axiomatic that consideration of the prior art cited by the examiner must, of necessity, include consideration of the admitted state of the art found in applicant's specification, *In re Davis*, 305 F.2d 501, 134

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USPQ 256 (CCPA 1962); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986).

Admitted knowledge in the prior art may be used in determining patentability of the claimed subject matter, *In re Nomiya*, 509 F.2d 566, 184 USPQ 607 (CCPA 1975).

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art made of record serves to further establish the level of ordinary skill in the art.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John J. Zimmerman  
Primary Examiner  
Art Unit 1794

/John J. Zimmerman/  
Primary Examiner, Art Unit 1794

jjz  
February 17, 2009